Master in Chemical Engineering

Overview:

Chemical Engineering is a broad discipline that employs tools from chemistry, physics, mathematics and biology to carry out molecular transformation of low value raw materials to high value final products in a cost-efficient, safe and environmentally benign fashion. Due to this broad-based training in the application of the basic sciences, Chemical Engineers enjoy careers in diverse industries in chemical and petrochemical processing, biopharmaceutical, materials and electronics manufacturing, energy generation and distribution, environmental remediation, process automation and more recently, in new product design.

What Sets Us Apart:

Established in 1903, Chemical and Biomolecular Engineering is one of the oldest degree programs at Lehigh University and is also one of the oldest in the US. Lehigh Chemical engineers have embraced an entrepreneurial culture for over 100 years, establishing a heritage of leadership and collaboration that still thrives today. Our department has taken the practice of chemical and biomolecular engineering into the twenty-first century, bearing on the most technologically challenging issues of the day, including energy, biotechnology, polymeric materials, “green” chemical processing, catalysis and computational systems engineering.

Our research-active faculty members bring state-of-the-art technology, knowledge and teaching methods to the classroom, creating an intellectually stimulating environment for students to engage in advanced learning through our MS/MEng degree offerings. Our program is rigorous but has a very high completion rate of the Master’s degree requirements within a period of about 3 years. In addition to undergraduate majors in chemical engineering, our Master’s program is also suitable for select students from physics, chemistry, and other engineering majors to transition to Chemical Engineering through a staged course-based learning plan.

Requirements:

The Department of Chemical and Biomolecular Engineering offers two Master degree programs: the Master of Engineering degree (coursework only, no thesis) and the Master of Science degree (with research report or thesis). Both programs require 31 credit hours of graduate work.

The Master of Engineering program is comprised of 13 credit hours of the four core chemical engineering courses listed below; six credit hours of electives in the chemical engineering field; with the remaining 12 credit hours of electives within or outside of the department.

Requirements for the Master of Science (research report) are: 13 credit hours of four core chemical engineering courses; six credit hours of electives in the chemical engineering field; six credit hours of research credits (ChE 480 & 481); and six credit hours of electives inside or outside of the department. Requirements for the Master of Science (with thesis) are the same as the research report except the six credit hours inside or outside of the department are replaced by six thesis credit hours (ChE 490).

All electives outside of the department can include various specialization courses in areas such as Polymer Science and Material Science. Cross-listed courses for all programs, needs the approval of the department to be used as a Chemical Engineering elective. Please consult the department coordinator for approval. Each program should include the following levels:

- Not less than 31 credit hours of graduate work at 300- or 400-level
- Not less than 18 credit hours of coursework at the 400-level
- Not less than 18 credit hours in the field of Chemical Engineering
- Not less than 15 credit hours of 400-level coursework in the Chemical Engineering field
Students choose their coursework and complete their degree requirements by selection of any set of courses consistent with these requirements. Once accepted, the Master’s degree performance requirements will apply as follows:

- No course with a grade below a “C-” may be included in the degree program.
- More than four grades (regardless of number of credits) below “B-“ terminates the student’s eligibility for continued graduate work at Lehigh.

Admission:

The program is open to applicants with an undergraduate degree in Chemical Engineering from an accredited institution; however, applicants with an appropriate background are encouraged to apply. Applicants must submit GRE scores, and international applicants must also submit a TOEFL. In addition to the requirements outlined in the admissions application, a personal essay summarizing your career objectives and work experience with respect to your chosen field of study must be submitted along with the application for admission. In order to be considered for admission, an applicant must have an undergraduate cumulative GPA of 3.0 or higher and a GPA of 3.0 or higher for the last two semesters of undergraduate studies.

Applicants that don’t meet the above mentioned requirements may be admitted as associate status, at the department’s discretion. To change status you will need to contact the academic graduate coordinator of the department after admission.

Curriculum:

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<th>Core Courses</th>
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<tr>
<td>ChE 400 Chemical Engineering Thermodynamics (3)</td>
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<tr>
<td>ChE 410 Chemical Reaction Engineering (3)</td>
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<tr>
<td>ChE 415 Transport Processes (4)</td>
</tr>
<tr>
<td>ChE 452 Mathematics Methods in Chemical Engineering (3)</td>
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Electives: The elective courses will be selected in conjunction with the student’s advisor from numerous electives offered throughout the program. Please see above requirements.

Information of Interest: A maximum of up to nine credits taken at the graduate level elsewhere may be transferred from an accredited graduate college or graduate university to a Lehigh University Engineering Master’s program. All courses must be submitted to the department along with a course description (syllabus), a letter from the university stating that the credits are actual graduate level courses, and not used toward a previous degree, and also an official transcript if not already provided.

Contact:

Academic Advisor
Professor James T. Hsu
Phone: (610) 758-4257
E-mail: jth0@lehigh.edu

Program Contact
Barbara Kessler
Graduate Coordinator
Phone: (610) 758-4261
E-mail: bak0@lehigh.edu

Department Website:
http://www.lehigh.edu/~incheme/
**Additional Information:**

A maximum of up to nine credits taken at the graduate level elsewhere may be transferred from an accredited graduate college of graduate university to a Lehigh University Engineering Master’s Program. All course must be submitted to the department along with a course description (syllabus), a letter from the university stating that the credits were actual graduate level courses, and not used toward a previous degree, and also an official transcript if not already provided.